

# CS KICKSTART

SEPTEMBER 24, 2018

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**WELCOME LETTER FROM THE DEAN'S OFFICE**



Dr. Craig Jordan

Welcome to the incoming Class of 2022 and our returning Computer Science majors.

This is an exciting time for Computer Science at UTSA as the University embarks on an initiative to develop the National Security Collaboration Center and the School of Data Science. The University of Texas Board of Regents has committed \$70 million to begin the process of developing UTSA as an international leader in cybersecurity, artificial intelligence, and information and data management.

The University's efforts will provide you with additional opportunities to prepare yourselves to be well-trained for an ever-increasingly important part of the business and technology sectors of the United States' workforce and economy.

We look forward to working with you to make the most of your educational experience at UTSA and to develop all of the attributes that you will need to proceed after graduation to a productive and rewarding future. I wish you the greatest success in your collegiate explorations and assure you that the door to the Dean's office is always open to assist you in any way we can.

Craig Jordan, Ph.D.  
Senior Associate Dean  
College of Sciences

**WELCOME LETTER FROM THE DEPARTMENT CHAIR**



Dr. Jianwei Niu

Welcome to a new academic year and to a new edition of *CS Kickstart*. We are excited to kick off the semester and welcome the 312 new undergraduates, 19 new masters students, and 13 new doctoral students who are joining the computer science program this Fall.

The CS department strives to provide a high quality education for our students as well as cutting edge research opportunities to prepare our students for careers in the computing industry. Our research facilities provide state-of-the-art computing facilities to support students and faculty in educational excellence and leading research projects, including areas such as deep learning, cloud systems, big data and analytics, and cyber security. We have plans to expand our industry partnerships and provide more industry opportunities for internships and research experiences, as well as develop synergy between research and student success.

Our hope for this newsletter is to connect students, faculty, staff, alumni, and stakeholders with recent accomplishments, upcoming events, informative articles, and job/internship opportunities for students. If you would like to contribute to the newsletter, I welcome you to email us at [cs@utsa.edu](mailto:cs@utsa.edu).

Jianwei Niu, Ph.D.  
Interim Chair, Department of Computer Science

**UTSA CS DESIGNATED A CENTER OF ACADEMIC EXCELLENCE IN CYBER OPERATIONS BY THE NATIONAL SECURITY AGENCY**



The University of Texas at San Antonio (UTSA) Computer Science department has been designated by the National Security Agency (NSA) as a National Center of Academic Excellence in Cyber Operations Fundamental (CAE-Cyber Operations) for 2018 through 2023.

The designation recognizes UTSA's ability to thoroughly prepare workforce-ready professionals to protect the nation's information infrastructure.

Continued on page 4

*"UTSA CS Receives CAE-CO Designation by NSA"*



**DID YOU KNOW...?**

Most of the world's top supercomputers run on Linux. Before Linux took the lead, Unix was super-computing's top operating system.

Source:  
TOP500.org Supercomputer List Nov. 17  
<https://www.zdnet.com/article/linux-totally-dominates-supercomputers/>

## CS FACULTY EARN TENURE AND PROMOTION THIS FALL 2018



Dr. Matthew Gibson

Dr. Matthew Gibson has been promoted to associate professor with tenure effective Fall 2018.

Tenure is awarded to faculty who distinguish themselves in the areas of teaching; research, scholarship or creative activities; and service to

the university and community; and who further demonstrate strong potential for continued excellence in these areas.

Gibson leads the San Antonio Geometry Algorithms (SAGA) research lab, where he works on developing algorithms for image segmentation, digital geometry, visibility, and cloud computing.

In addition to supervising masters and doctoral students, Gibson is also an active member on the Departmental Faculty Review Advisory, Graduate Studies, Communication & Outreach, and Faculty Search committee boards.



Dr. Jianhua Ruan

Dr. Jianhua Ruan has been promoted to professor effective Fall 2018.

His research interests lie in the broad area of bioinformatics, computational biology, and machine learning.

Ruan leads the Bioinformatics Research & Development Group (BRDG), which develops state-of-the-art data-analytical algorithms and tools to make complex and massive biological data more understandable and useful. Their research combines data mining, machine learning, and graph theoretical methods and they collaborate frequently with biologists for applications on real data addressing important biomedical research problems.

Ruan received a Best Performer award in the Third Annual DREAM Reverse Engineering Challenges in 2008. His research is sponsored by the National Institute of Health, the National Science Foundation, and the San Antonio Life Sciences Institute.



Dr. Kay Robbins

Dr. Kay Robbins has been awarded Professor Emeritus status in honor of her 43 years of service and valued contributions to the university.

Her research focuses on modeling, visualization, analysis, and management of multimedia data sets in three major application areas: neuroinformatics, bioinformatics, and medical informatics.

Robbins leads the UTSA Visualization & Modeling Laboratory (VML), which works on developing algorithms and tools for automated annotation and retrieval of EEG and other signals based on content, as well as tools to detect enrichment of co-occurrences of events and signal patterns.

Additionally, Robbins spearheaded curricular development for several courses, including designing materials and techniques for Data Analysis & Visualization, Bioinformatics, and Web Technologies.

## NEW FACULTY AND STAFF JOIN UTSA COMPUTER SCIENCE DEPARTMENT



Dr. Steven O'Hara

Dr. Steven O'Hara will be joining Computer Science as an Assistant Professor in Practice starting Fall 2018.

O'Hara earned his B.S. and M.S. in Mathematics and his Ph.D. degree in Computer Science from the University of Texas at San Antonio in 1981,

1985, and 2014 respectively.

O'Hara previously taught courses for the U.S. Army Cyber Center of Excellence at Fort Gordon in Georgia. He is also the founder and CEO of Eagle Legacy Modernization LLC, which invented (and patented) a new way to parse computer programs to radically improve programming language analysis and transformation.



Dr. Mauricio Gomez

Dr. Mauricio Gomez will be joining Computer Science as an Assistant Professor in Practice starting Fall 2018.

Gomez recently earned his Ph.D. in Computer and Information Technology from Purdue University and a joint Ph.D. degree in in Computer Engineering from L'École Doctorale Mathématiques et

Sciences et Technologies de l'Information et de la Communication (MSTIC) from the University of Paris-Est.

Gomez received his B.S. in Computer Science from Rafael Landivar University, Guatemala in 2009, and M.S. in Finance from Central American Technological University, Honduras in 2011. Gomez has fifteen years of professional expertise as an analyst-programmer, and conducts research on robotics and multi-agent systems survivability.



Carmen Arizmendi

Carmen Arizmendi recently joined the Computer Science department as an Administrative Associate II this Summer 2018.

Arizmendi previously worked as an Administrative Assistant II for the Department of Political Science at the University of Texas Rio Grande Valley

since 2014.

Arizmendi will be responsible for preparing and processing fiscal affair related tasks for faculty, staff, and students, including facilitating purchases, coordinating travel arrangements, ordering textbooks, and other administrative operations.

## LIU RECEIVES \$499K NATIONAL SCIENCE FOUNDATION GRANT



Dr. Tongping Liu

Dr. Tongping Liu, assistant professor of computer science, has received a National Science Foundation (NSF) grant of \$499,992 for support of his project entitled “SPX: Collaborative Research: Pinpointing and Resolving Scalability Culprits Hidden in Different Components of the Whole System Stack.”

This project aims to systematically pinpoint and resolve latent software contention in all components of the whole software stack from user space. The proposed approaches are urgent due to the pervasive use of multi-core and many-core hardware. Also, according to Amdahl's law, a small degree of latent contention in any of the components may substantially limit the speedup potential on these modern hardware.

The research plans to design low-overhead profilers to obtain runtime information for system calls, memory allocator behaviors, and all interacting events between components, as well as analyzers to automatically pinpoint the root causes of scalability bottlenecks. Through a runtime optimizer, the research aims to fix the identified scalability issues without intervention from the programmer.

Liu's project has potential to dramatically reduce manual effort for software optimization and improve performance for parallel applications on modern hardware.

For more information on UTSA's  
Laboratory for Cybersecurity Dynamics, visit:  
<http://www.cs.utsa.edu/~shxu/LCD/index.html>

## FEATURED PHOTO: COS DOCTORAL RECEPTION



Graduating doctoral students were honored at the 2018 UTSA College of Sciences reception hosted by the dean's office on May 10, 2018.

Pictured above (From left to right) Assistant Professor of Computer Science Dr. Xiaoyin Wang, Spring 2018 Graduating PhD student Shaikh Mostafa, Professor of Computer Science Dr. Rajendra Boppana, and Spring 2018 Graduating PhD student Asma Alshehri.

UTSA's Computer Science has doubled in size and funding over the last few years. In 2014, the cyber security programs in the Department and at UTSA were ranked #1 out of 400 schools in the United States. The graduate programs were ranked #2 in 2016.

**UTSA CS RECEIVES CAE-CO DESIGNATION BY NSA CONTD.**



NSA Associate Deputy Judith A. Kain Emmel presents the designation certificate to Dr. Rajendra Boppana for UTSA's Center of Academic Excellence in Cyber Operations at the CAE-Cyber Summit awards ceremony in Huntsville, Ala.

"The designation of CAE for Cyber Operations is a major accomplishment for the Computer Science program and UTSA's cyber initiative," said Rajendra Boppana, professor of the UTSA Department of Computer Science who oversees cyber operations. "To meet the requirements and to achieve the designation, we have introduced and taught more than six new courses in the last three years. We also

introduced a new Cyber Operations Track which is expected to be available in the fall of 2018."

Boppana says the designation attests to the quality and breadth of the undergraduate computer science program at UTSA and establishes UTSA Computer Science as one of the top programs in cyber operations at the undergraduate level. In addition to the Cyber Operations Track, the UTSA undergraduate program in Computer Science also offers concentrations in Cybersecurity, Data Science, Cloud and Systems, and Software Engineering.

With participation in the National CAE program, UTSA will join the NSA with assistance in building a future workforce knowledgeable and trained in specialized intelligence, military and law-enforcement cyber operations (e.g. collection, exploitation and response) to enhance the national security of the United States.

In addition to offering a robust foundational computer science curriculum, UTSA offers classes in virtualization, risk management of information systems, software security of analysis, digital forensics, applied cryptography, user experience/human computer interface security, offensive cyber operations, cloud security/cloud computing, computer architecture, secure SW development, and systems programming.

Students interested in graduate studies may also pursue M.S. and Ph.D. programs with concentrations in Cybersecurity in the Department of Computer Science.

**UTSA COMPUTER SCIENCE DEPARTMENT PARTNERS WITH NCWIT TO INCREASE FEMALE RECRUITMENT AND RETENTION**



In an effort to increase the recruitment and retention of female students in computer science, the UTSA Department of Computer Science has partnered with the National Center for Women and Information Technology (NCWIT).

UTSA Interim Department Chair Dr. Jianwei Niu hopes to encourage more female students to consider computer science as a field of study.

"Five or ten years ago, I wouldn't see that many women in my

classes," Niu commented. "Now it's changed so much, but we are still below the national average. I'm hoping we can learn from NCWIT and other universities to get best practices we can implement here."

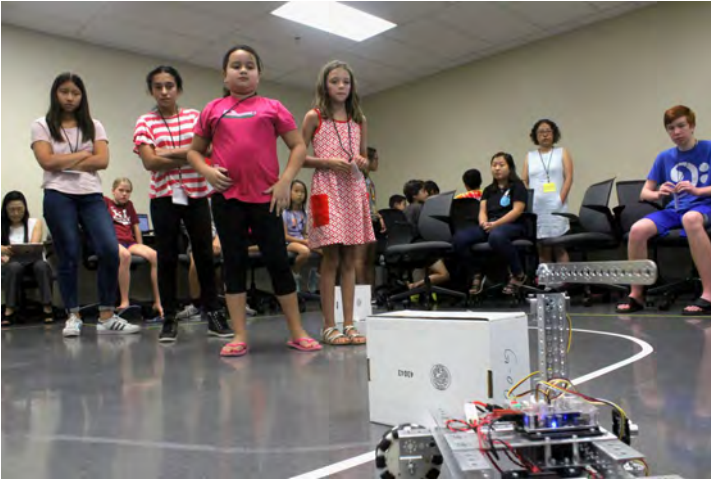
NCWIT develops programs tailored to the needs and goals of its partner universities, provides research-based resources, ideas for initiatives that can unify change leaders into action-oriented movements, and funds to support reform activities.

The CS Department will be collaborating with the UTSA Association for Computing Machinery Women's Student Chapter on initiatives to help motivate and retain current female computer science students.

**DEPARTMENT RECENT GRANT FUNDING AND AWARDS**

<p><b>Robust Machine Learning for Cyber Operations</b>                  Sponsor: University of Texas at Dallas                  Amount: \$100,000.00                  PI: Ravi Sandhu                  (Professor of Computer Science and Lutchter Brown Endowed Chair in Cyber Security)                  Co-PI: Jianwei Niu                  (Professor of Computer Science and Interim Chair)</p>	<p><b>SPX: Collaborative Research: Pinpointing and Resolving Scalability Culprits Hidden in Different Components of the Whole System Stack</b>                  Sponsor: National Science Foundation (NSF)                  Amount: \$499,992.00                  PI: Tongping Liu                  (Assistant Professor of Computer Science)</p>	<p><b>PAM: A Pattern-Based Measurement Model for Improving Software Reliability Phase 2</b>                  Sponsor: Minority Serving Institutions STEM Research &amp; Development Consortium (MSRDC)                  Amount: \$45,250.00                  PI: Jianwei Niu                  (Professor of Computer Science and Interim Chair)                  Co-PI: Xiaoyin Wang                  (Assistant Professor of Computer Science)</p>	<p><b>SALSI: Enhancing Safety and Security of Clinical Alarm Systems: An Interdisciplinary Cyber-Physical-Human Analysis</b>                  Sponsor: UTSA VPR Office                  Amount: \$50,000.00                  PI: Guenevere Qian Chen                  (Assistant Professor of Electrical Engineering)                  Co-PI: Shouhuai Xu                  (Professor of Computer Science)</p>
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## UTSA CS PILOTS ROBOTICS & PROGRAMMING SUMMER CAMP FOR KIDS



While most of UTSA campus was enjoying summer break, many San Antonio area children and teenagers joined the UTSA Department of Computer Science for its first Programming and Robotics Experience Summer Camp pilot.

UTSA Professor of Computer Science Dr. Dakai Zhu, hosted the two-week summer camp in partnership with Clash of Coders with support from the National Center for Women and Information Technology (NCWIT).

Campers between the ages of eight and eighteen formed teams who would work together to build, program, and execute their devices in a robotics competition. One high school camper was assigned to each team, mentoring the younger elementary and middle school campers on the basics of programming and develop an interest in computing and robotics.

After two weeks of learning how to program robots to navigate autonomously, teams competed to perform a series of tasks for points. Winning teams received Bluetooth headphones, USB hard drives, and other prizes.

“The goal of this camp was to introduce and inspire kids to the world of computing and robotics,” Zhu said. “I think we had a very successful pilot, and are excited to plan next year’s camp!”

## CS STUDENT LIFE: GETTING INVOLVED



ACM members hosted an Ice Breaker Meet and Greet social to welcome new members after their first chapter meeting of the Fall 2018 semester.

UTSA has more than 330 student organizations on campus, giving its students have plenty of opportunities to connect with one another.

Computer Science (CS) has many student organizations created by computer science students to create a network of community amongst their fellow CS peers.

One of the best ways to get connected with other students and stay in-the-know of upcoming events and activities is to join one or more of the CS clubs available for students.

Events throughout the year include hackathon competitions, tech panels from invited speakers, volunteer opportunities, career prep, and socials.

### CS Student Organizations

**Association for Computing Machinery (ACM)** hosts talks and presentations, and gives you the chance to compete in worldwide programming contests for students. Contact [acm.utsa@gmail.com](mailto:acm.utsa@gmail.com) for more information.

**Association for Computing Machinery Women’s Chapter (ACM-W)** aims to create an engaging academic, professional, and social network for women in technology. Contact [acmw.utsa@gmail.com](mailto:acmw.utsa@gmail.com) for more information

**ACM International Collegiate Programming Contest (ACM-ICPC)** competes in a world-wide programming contest where thousands of 3-person teams compete by solving anywhere from 8 to 12 algorithm problems of varying difficulty, from easy to extremely hard. Contact [acm.utsa@gmail.com](mailto:acm.utsa@gmail.com) for more information.

**Computer Security Association (CSA)** hosts meetings, talks and presentations from researchers in the field, and cyber security contests. Contact [utsacyber@gmail.com](mailto:utsacyber@gmail.com) for more information

**Computer Science Graduate Student Association (CSGSA)** organizes events to encourage research activities, networking opportunities, facilitate recruitment, host speakers, and provide a knowledge sharing environment in the department of computer science. Contact Lee Boyd at [lee.l.boyd@gmail.com](mailto:lee.l.boyd@gmail.com) for more information.



## Featured Job Opportunities!

#	Employer	Job Title	Type	Application Deadline	How to Apply
1	UTSA OIT Connect	Lab Assistant	Part Time Job	September 27th at 12:00pm	Apply via UTSA Handshake
2	Girlstart	Girlstart STEM CREW Intern	Part Time Internship	September 28th at 12:00am	Apply via UTSA Handshake
3	HEB	Internship—Information Systems	Full Time Internship	September 30th at 6:55 pm	Apply via UTSA Handshake
4	Office of Congressman Lamar Smith	Spring 2018 Internship	Part Time Internship	October 2nd at 7:00 am	Apply via UTSA Handshake
5	Pacific Northwest National Laboratory	Science Undergraduate Laboratory Internship (SULI) Spring 2018	Internship	October 2nd at 4:00 pm	Apply via UTSA Handshake
6	EY LLP	EY Advisory Services – Risk – Cyber Threat Management Intern	Internship	October 12th at 11:59 pm	<ol style="list-style-type: none"> <li>1. You must first apply using your school's online recruiting system for only one of our positions</li> <li>2. You must apply through our online system at <a href="http://www.ey.com/us/apply">www.ey.com/us/apply</a>.</li> <li>3. You must complete our Recruiting Candidate Preferences Form: <a href="http://ey.recsolu-campus.com/candidatepreferenceform.php?formId=aGNqZ0%3D%3D">ey.recsolu-campus.com/candidatepreferenceform.php?formId=aGNqZ0%3D%3D</a></li> </ol>
7	780th Military Intelligence Brigade	Cyber Operations / Cyber Analyst	Full Time	December 31st at 10:55 pm	Apply via UTSA Handshake

VISIT UTSA'S CAREEREDGE WEBSITE

<http://careercenter.utsa.edu/>

FOR MORE GREAT OPPORTUNITIES LIKE THESE!!!

### Upcoming Career Development Events Fall 2018

#### UTSA College of Science Research Conference

Fri Oct 6th, 8:00am-4:00pm – HEB University Center

#### Career Development Session #4: Employers and You

Fri Oct 6th, 3:00pm-4:30pm – NPB 1.226

#### CS Posters and Cookies

Fri Nov 3rd, 3:00pm-5:00pm, CS Department – NPB 2nd Floor

#### Career Development Session #5: Mock Interviews

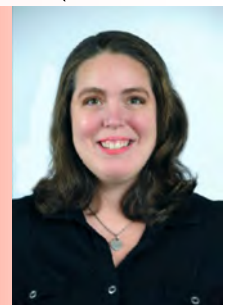
Register at [utsa.joinhandshake.com](http://utsa.joinhandshake.com)

Fri Nov 10th, 3:00pm-4:30pm in Mesquite Room – UC 2.01.24



Have Questions?  
 Story Ideas?  
 Photos?

Email the editor at  
[cs@utsa.edu](mailto:cs@utsa.edu)



Kimberly Ward